Cal/EPA Environmental Justice Action Plan

Pilot Project Proposal Summary for
Air Monitoring in a Central Valley Community

January 14, 2005

I. **Lead Agency**: Department of Pesticide Regulation (DPR)

II. **Area Proposed:** The community of Parlier, Fresno County.
Alternative options for monitoring sites are the community of Arvin in Kern County or the community of Mendota in Fresno County.

Area Demographics: See information below on Page 2, under "Site Selection." For a much more detailed examination of demographics in the 83 communities evaluated by DPR, please refer to the briefing paper on DPR's Environmental Justice Web site, www.cdpr.ca.gov/docs/envjust/pilot_proj/index.htm

III. **Background:** DPR will lead a pilot project in the Central Valley, focusing on pesticides in a rural, farming community. California rural communities may have higher concentrations of pesticides in ambient air compared to urban communities, due to their proximity to agricultural fields. Air monitoring conducted by the DPR and the Air Resources Board (ARB) currently provides limited data to estimate human exposure to both single and multiple pesticides over several months or years.

This pilot project will provide more systematic air monitoring for a Central Valley community and therefore will serve as a more robust foundation for exposure assessment, with a particular focus on children.

IV. **Project Start Date:** Spring 2005

V. **Project End Date:** Summer 2006 (data collection ends); early 2007 (release of evaluative report)

VI. **Goal & Objectives:**

a. **Goal:** Evaluate ambient air exposure to pesticides in order to better understand and identify opportunities to reduce environmental health risk, particularly to children.

b. **Objectives:**
- Are residents of the community exposed to pesticides in the air?
- Which pesticides are people exposed to and in what amounts?

- Do measured pesticide air levels exceed levels of concern to human health, particularly children?

VII. Activities – Planning, Implementation, Evaluation, & Deliverables

Planning

Site Selection: DPR evaluated 83 communities, 81 of them in Merced, Madera, Fresno, Kings, and Tulare counties. One community from Kern County and one community from Stanislaus County were also evaluated. Prioritization of the communities was based on the following criteria:

- Community Environmental Justice (EJ) Factors
  - Child population (less than 18 years old)
  - Non-white population
  - Family income
  - Pesticide drift illnesses

- Availability of Cumulative Impact Data
  - Pesticide well monitoring
  - Monitoring stations for criteria air pollutants

- Pesticide Use
  - Regional use (within 5 miles of community) of four different categories of pesticides
  - Local use (within 1 mile of community) of four different categories of pesticides

*For a detailed briefing paper on the selection factors and relative weightings of the 83 communities, please refer to DPR's Environmental Justice Web site, www.cdpr.ca.gov/docs/envjust/pilot_proj/index.htm.

DPR also considered other factors, including air sampling feasibility, weather patterns, and the potential for collaboration with other projects focused on environmental health.

Site selection factors of Parlier are significant. Parlier has a high rating on most environmental justice factors noted above, with the exception of drift illnesses. The community has high use of most pesticides. There is a large amount of cumulative impact data available for Parlier; including dioxin data not available for any other community. Collaborative opportunities for Parlier are good; Parlier is a candidate for an upcoming asthma study planned by the University of California at San Francisco (UC San Francisco); and the University of California Kearney Agricultural Center, located just outside Parlier, is conducting research and extension programs to help growers use farming practices that are economically, environmentally and socially sustainable.

Based on these factors, DPR proposes the City of Parlier in Fresno County, the highest rated community of the 83 communities evaluated for the pilot project.

The alternative community possibilities for monitoring, the City of Arvin in Kern County or the City of Mendota in Fresno County, also have notable site selection factors. Arvin has moderate to high ratings in all categories and subcategories, except availability of well monitoring data. Arvin community participation in would likely be high. Mitigating against this is selection is Arvin's distance (more than 130 miles) from DPR's monitoring base in Fresno. DPR would incur substantial travel and per diem costs for an Arvin project, impacting funds available for monitoring and reducing the number of samples that could be taken by 10 to 30 percent. There are also no collaborative projects planned in Arvin. In Mendota, an environmental heath study is anticipated to be conducted by the University of California at Davis (UC Davis).

Candidate Pesticides to Monitor: DPR proposes to monitor as many as 21 pesticides. If ARB or other appropriate agency provides DPR with laboratory assistance, DPR will then modify this proposal to monitor an additional six pesticides, totaling 27 pesticides for monitoring.

Candidate pesticides were selected based on the following criteria:

- Statewide use
- Volatility
- DPR risk assessment priority
- Valid monitoring method

For a detailed briefing paper on the selection factors and candidate pesticides, please refer to DPR's Environmental Justice Web site www.cdpr.ca.gov/docs/envjust/pilot_proj/index.htm.

- **Reduction of Risk to Children's Health:** Additional data on pesticides in ambient air can help provide the foundation for more robust exposure assessment. Exposure assessments, along with other data, are needed to develop effective measures, as necessary, to reduce any hazardous pesticide levels in air.

- **Cal/EPA Cross-Media Implication:** DPR considered the availability of data of pesticides in groundwater and on other air toxins (including criteria air pollutants). Parlier scores high in the availability of cumulative impact data; in addition, dioxin monitoring data will be available for this and no other community evaluated. DPR will work with other Cal/EPA Boards, Departments, and Office to identify cross-media opportunities as the project proceeds.

- **Partnerships:** Parlier is proposed as DPR's first choice for monitoring in part because of the great potential for collaborative projects. Potential partnerships from the Parlier site selection include the following:

- **ARB** plans to conduct special air monitoring for dioxins in Parlier, beginning in early 2005.

- **UC San Francisco Valley Air Pollution Health Effects Research Institute** in Fresno plans to study correlations between asthma in children and air toxics, including pesticides. This study will examine asthma prevalence and air concentrations at two urban and two rural schools. The schools have not been selected, but it is likely that the schools selected will be located in Fresno County.

- The **California Environmental Health Tracking Program** (joint program of the Centers for Disease Control and Prevention, California Department of Health Services, and Cal/EPA's Office of Environmental Health Hazard Assessment) is conducting a pilot project in the San Joaquin Valley to demonstrate the feasibility of linking exposure (including pesticides) and health outcomes data. This project will also evaluate potential relationships between exposure and health outcomes.

- The **University of California Kearney Agricultural Center**'s research and extension programs are designed to help farmers achieve economic success while farming using environmentally and socially sustainable practices. The possibility of consultation with scientists at Kearney would be beneficial not only during the air monitoring portion but more importantly, during any mitigation development phase of the project**.**

- The site selection of Mendota offers includes a collaboration opportunity with the **UC Davis, Agricultural Health and Safety Center.** The Center plans to do a study of occupational and environmental health hazards in a migrant farmworker population, with focus on the Mendota area.

Implementation

- **Methodology & Performance Indicators:** DPR will collect and analyze air samples a maximum of 27 pesticides. Monitoring will likely occur at two to four sites in a single community, sampled four to twelve times per month, for 12 months. The monitoring data will be evaluated to determine which, if any, of the pesticides exceed health screening levels established by DPR scientists. This evaluation will also include estimates of cumulative risk from multiple pesticides and multiple media.

- **Public Participation:** Monitoring data should be collected over an entire year to provide the most complete representation of pesticides in ambient air (many orchard pesticides are applied during the dormant season. In addition, before planting, soil is often

fumigated, and this typically occurs in winter or early spring). DPR plans to move quickly once the community is selected to establish a local advisory group (LAG). The LAG will provide recommendations and input to the DPR staff involved in the pilot project. Staff from the Department of Toxic Substances Control (DTSC) public participation program will assist in the development of the LAG and facilitate communication between the LAG and DPR staff, as necessary. The LAG will provide the diversity of viewpoints and balance of representation of the project community, including members of community groups, local agencies, business interests, and other stakeholders, with focus from the project community representatives.

- **Project Work Plan & Timeline:**

	Activity	Start Date	End Date
Phase 1	**1. Identify pilot project location(s)**	**1st Qtr 2005**	**1st Qtr 2005**
	2. Define project parameters	**1st Qtr 2005**	**1st Qtr 2005**
Phase 2	**1. Establish Local Advisory Group (LAG)**	**2nd Qtr 2005**	**Ongoing**
	2. Collect data	**2nd Qtr 2005**	**2nd Qtr 2006**
	3. Evaluate results and write report	**3rd Qtr 2006**	**1st Qtr 2007**
Phase 3	**1. Develop Children's Environmental Risk Reduction Plan (ChERRP)**	**1st Qtr 2007**	**2nd Qtr 2007**
Phase 4	**1. Implement ChERRP**	**3rd Qtr 2007**	**1st Qtr 2008**
Phase 5	**1. Evaluate ChERRP**	**Ongoing**	**3rd Qtr 2008**
	2. Explore implementation options of project	**Ongoing**	**Ongoing**

Evaluation & Deliverables

- **Results:** The monitoring results will be evaluated to determine the exposure and risk from individual as well as multiple pesticides. The data will be compared to historical monitoring results from other areas. DPR will also evaluate the results and pesticide use patterns at the time of monitoring to determine possible mitigation measures, as well as other potential areas and time periods for future monitoring. DPR is developing sampling and laboratory methods that provide flexibility so that they can be used in other areas with minimal additional work.

- **Deliverables:** Deliverables include the following:

- **More robust exposure assessment data.**
- **Indicators for future air monitoring projects.**
- **Indicators for areas for future investigation.**
- **Data that can be used to develop risk reduction measures that may be needed.**

- **Considerations, Anticipated Challenges/Constraints:** Data collected may be ambiguous, or present an incomplete picture. Even if evaluation results are clear, solutions may not be. For example, air monitoring data collected in the early 1990s indicated problematic ambient air levels of the fumigant 1,3-D. Revised application practices were needed to reduce levels in air. The registrant (manufacturer) undertook several years of field testing to develop these measures. Similarly, water quality analysis has demonstrated problematic levels of the organophosphate pesticides diazinon and chlorpyrifos in surface water. However, further studies were needed to determine the source of the residues and to develop effective measures to control the problem. Related to these examples is the continuing challenge inherent in pesticide use: many pesticides are used only at certain times of the year, so monitoring and field testing of mitigation measures is limited to those, sometimes brief periods.

VIII. For More Information:

For more detailed discussion of the criteria used and relative rankings of the evaluated communities, please visit DPR's Environmental Justice Web page at **www.cdpr.ca.gov/docs/envjust/pilot_proj/index.htm**.

Comments, Questions, or Concerns regarding this Pilot?

Please direct comments, questions, or concerns to:

via Email: **EnvJustice@calepa.ca.gov**

via Postal Mail: **Cal/EPA Environmental Justice Program**
PO Box 2815
Sacramento, CA 95812

via Phone: **Randy Segawa at (916) 324-4137**

Project Contacts:

Pilot Project Lead:
Randy Segawa
Senior Environmental Research Scientist, DPR
rsegawa@cdpr.ca.gov

Scientific Policy Advisor:
Tobi Jones, Ph.D.
Assistant Director, Registration and Health Evaluation Division, DPR
tjones@cdpr.ca.gov

DPR Environmental Justice Coordinator:
Veda Federighi, Assistant Director, External Affairs, DPR
vfederighi@cdpr.ca.gov